



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,481	03/18/2004	Osamu Omori	9319S-000702	5518
27572	7590	11/04/2005	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			STEIN, JAMES D	
			ART UNIT	PAPER NUMBER
			2874	

DATE MAILED: 11/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/803,481

Applicant(s)

OMORI, OSAMU

Examiner

James D. Stein

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on amendment filed on 9/12/05.
2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-12 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 18 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

DETAILED ACTION

This Office Action is responsive to the amendment filed on 9/12/05, which has been fully considered and entered. Claims 1 and 8 have been amended. Claims 1-12 are pending in the application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over [USPAT 6,798,031] to Honda et al. ("Honda") and further in view of [USPAT 6,655,854] to Nguyen et al.

With regard to claims 1 and 8 and referring to fig. 5, Honda discloses a related optical module comprising a wiring substrate 12a including a wiring pattern formed thereon (col. 11 line 42 col. 12 line 38); an optical chip 10A including an electrode 10Ab that is electrically connected to the wiring pattern 12a and an optical section 10Aa (col. 13 lines 10-11); a base member 14A that holds a lens 3 that focuses light on the optical section (col. 13 lines 2-6), wherein a surface of the optical chip 10A having the electrode 10Ab is opposed to the wiring substrate 12a, the wiring substrate includes a light-transmissive section (open center area of base member 14A), at a location that overlaps the optical section 10Aa and the base member 14A is affixed to the optical chip 10A through the wiring substrate 12a, as shown by fig. 5. Furthermore, said base member includes a mounting section comprising a first portion (upright portion) that is at least substantially perpendicular to the substrate 12a and a second portion (horizontal projecting

Art Unit: 2874

portion) that is at least substantially parallel to the substrate 12a and secured to the substrate 12a (col. 13 lines 7-13).

Therefore, Honda discloses the claimed invention except for the wiring substrate 12a to include a flexible substrate. Nguyen et al. disclose a related optical coupling module including a wiring substrate further comprising a flexible substrate 208. Nguyen et al. teaches such a feature to be advantageous in facilitating interconnection between a printed wiring substrate and a photonic device (such as optical device 10A of Honda), which is exactly the purpose of the invention disclosed by Honda. Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art to modify optical module disclosed by Honda such that the wiring substrate 12a included a flexible substrate 208 in order to facilitate reliable interconnection between the printed wiring substrate and the optical device 10A. The method of manufacturing an optical module of claim 8 is inherent to this disclosure.

With regard to claim 2, in addition to the rejection of claim 1 previously discussed above, because base member 14A is affixed to the wiring substrate 12A (fig. 5, col. 13 lines 7-13), and wiring substrate 12a is affixed to the optical chip 10A via electrodes 10Ab (fig. 5, col. 13 lines 10-11), the base member 14A is inherently affixed to the optical chip at a position of the electrode 10Ab and through the wiring substrate 12a.

With regard to claim 3, in addition to the rejection of claim 2 previously discussed above, the connection between the electrode 10Ab and the wiring pattern 12a is sealed with a solder bump (col. 13 line 10).

With regard to claim 4, in addition to the rejection of claim 1 previously discussed above, said light-transmissive section comprises the open center area of base member 14A).

With regard to claim 5, in addition to the rejection of claim 4 previously discussed above, fig. 5 shows a plurality of electrodes 10Ab included on the optical chip 10A that are connected to the wiring pattern 12a in a region around the opening section (coincides with said light-transmissive section) on the wiring substrate 12a (comprises two portions on both sides of device), and the base member 14A is provided to surround the opening section.

With regard to claim 6, in addition to the rejection of claim 1 previously discussed above, the base member 14A is shown by fig. 5 to be adhered to (molded to) the wiring substrate 12a (col. 13 lines 7-13).

With regard to claim 7, no further structural limitations have been added to further focus parent claim 1. It is therefore rejected on the same basis as claim 1. The device as disclosed by Honda is inherently an electronic device as it comprises sensing chip 10A.

Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda-Nguyen as applied to claim 8 above, and further in view of [USPUB 20040081385] to Karnacewicz et al, which discloses a related optoelectronic device. The claimed invention is inherent to the disclosure previously discussed above, except for the use of alignment marks to align the components of the optical module during assembly. In addition to marks (fiducials) being extremely well-known in the art to be used to align the components of electronic and optoelectronic modules, Karnacewicz et al. discloses the use of marks to align an active optical device and a wiring substrate during assembly (§0020). Therefore, it would have been obvious at the time of the invention to one of ordinary skill in the art to modify the invention disclosed by Honda-Nguyen previously discussed above such that the base member is aligned by recognizing a mark, and the mark is formed in a region of the optical chip which is exposed through the

opening, wherein a mark is formed on the wiring substrate, a mark is a pattern formed in the same step in which the wiring pattern is formed in order to assemble the optical module with proper optical alignment.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

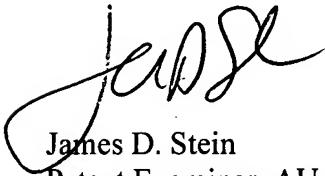
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James D. Stein whose telephone number is (571) 272-2132. The examiner can normally be reached on M-F (8:00am-4:30pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2874

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



James D. Stein
Patent Examiner, AU 2874



Sung Pak
Primary Patent Examiner
AU 2874